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| APPLICATION NO.                                                                              | FILING DATE | FIRST NAMED INVENTOR        | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|----------------------------------------------------------------------------------------------|-------------|-----------------------------|----------------------|------------------|
| 10/643,140                                                                                   | 08/18/2003  | J. Richard Aylward          | 02103-519002/S93 US1 | 3288             |
| 26162 7590 12/02/2009<br>FISH & RICHARDSON PC<br>P.O. BOX 1022<br>MINNEAPOLIS, MN 55440-1022 |             |                             |                      |                  |
| EXAMINER<br>KURR, JASON RICHARD                                                              |             |                             |                      |                  |
| ART UNIT<br>2614                                                                             |             | PAPER NUMBER                |                      |                  |
| NOTIFICATION DATE<br>12/02/2009                                                              |             | DELIVERY MODE<br>ELECTRONIC |                      |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

### Office Action Summary

**Application No.**

10/643,140

**Applicant(s)**

AYLWARD ET AL.

**Examiner**

JASON R. KURR

**Art Unit**

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 September 2009.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 6, 42 and 46 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 2, 6, 42 and 46 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 9/10/09  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Scofield (US 6,853,732 B2).

With respect to claim 1, Scofield discloses an audio system including a plurality of channels (fig.3 #54,56) intended to be radiated in a predetermined positional relationship to a listener, comprising: a listening area (fig.3 #64) comprising a plurality of listening spaces (fig.3 "spaces occupied by listeners #26"); a first directional local audio device (fig.3 #58,60) comprising at least two radiating elements radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions, the directional audio device being positioned in a first of said listening spaces (fig.3), close to a head of the listener (fig.3 #26) for radiating first sound waves corresponding to a first of said channels (fig.3 #58, "L-channel"); and a second nonlocal audio device (fig.3 #52), positioned inside said listening area and outside said listening spaces, distant from said first of said listening spaces (col.4 ln.58-

63), for radiating sound waves corresponding to said first of said channels (col.4 ln.21-25). It is implied that destructive interference resultant from two separate sound sources would not be equal at all points in space, therefore the sound waves would destructively interfere more in some directions when compared to others.

With respect to claim 42, Scofield discloses an audio system including a plurality of channels (fig.3 #54,56) intended to be radiated in a predetermined positional relationship to a listener, comprising: a listening area (fig.3 #64) comprising a plurality of listening spaces (fig.3 "spaces occupied by listeners #26"); a first local audio device (fig.3 #58,60) comprising at least two radiating elements radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions, the directional audio device being positioned in a first of said listening spaces, close to a head of the listener (fig.3 #26) for radiating first sound waves corresponding to a first of said channels (fig.3 #58, "L-channel"); and a second nonlocal audio device (fig.3 #52), positioned inside said listening area and outside said first of said listening spaces, distant from said first of said listening spaces (col.4 ln.58-63), for radiating sound waves corresponding to said first of said channels (col.4 ln.21-25). It is implied that destructive interference resultant from two separate sound sources would not be equal at all points in space, therefore the sound waves would destructively interfere more in some directions when compared to others.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of Iwahara (US 4,199,658).

With respect to claim 2, Scofield discloses an audio system in accordance with claim 1, wherein said directional audio devices comprise a plurality of acoustic drivers (fig.3 #58,60), however does not disclose expressly wherein said acoustic drivers are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space.

Iwahara discloses an audio system wherein a plurality of acoustic drivers (fig.1 #1-4) are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space (col.1 ln.37-68, col.2 ln.1-2).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the crosstalk cancellation system of Iwahara in the invention of Scofield. The motivation for doing so would have been to cancel inter-aural interferences between the right and left ears of a listener.

Claims 6 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of Fabry (US 7,164,773 B2).

With respect to claim 6, Scofield discloses an audio system in accordance with claim 1, however does not disclose expressly wherein said listening area comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment.

Fabry discloses an audio system to be mounted within an automobile (see figure).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the audio system of Scofield in the automobile Fabry. The motivation for doing so would have been to provide a virtual sound system within the cabin of a vehicle so as to provide a realistic reproduced sound to a passenger.

With respect to claim 46, Scofield discloses an audio system in accordance with claim 42, however does not disclose expressly wherein said listening area comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment.

Fabry discloses an audio system to be mounted within an automobile (see figure).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the audio system of Scofield in the automobile Fabry. The

motivation for doing so would have been to provide a virtual sound system within the cabin of a vehicle so as to provide a realistic reproduced sound to a passenger.

### ***Response to Arguments***

Applicant's arguments filed September 10, 2009 have been fully considered but they are not persuasive.

With respect to independent claims 1 and 42, the Applicant argues that Scofield does not disclose local and nonlocal audio devices with the nonlocal device and a radiating element of the local device radiating sound waves corresponding to the same channel. The Examiner disagrees and maintains the position set forth in the rejection above. Scofield discloses local audio devices (fig.3 #58,60) that are relative to the head of a listener, and a nonlocal device (fig.3 #52) or subwoofer that is positioned away from the listener. The present claim language discloses wherein the nonlocal device "radiates sound waves **corresponding** to said first of said channels". The nonlocal speaker #52 of Scofield radiates sound waves of a low frequency band that **corresponds** to the sound signals of channels #54 and #56 (See: col.4 ln.37-54). The Audio Signal Conditioner #44 merely passes low frequencies of the left and right channels to the subwoofer #52. These low frequencies correspond to the information forwarded along channels #54 and #56 to speaker #58 and #60. The present claim language does not disclose wherein the signal sent to the nonlocal audio device is exactly the same as the signal sent to the local audio device, therefor the teachings of Scofield are relevant.

The Examiner also maintains that the sound waves emitted from speakers #58 and #60 of Scofield would ultimately interfere more in certain directions than others. Acoustic pressure wave interference is a well known phenomenon such that the radiation patterns of two acoustic generating devices would conflict destructively and constructively dependent upon the location within the generated sound field, and the relative mounting position of the acoustic generating devices.

With respect to claim 2, the Applicant argues that a combination with Iwahara would destroy the function of the primary reference, However the Applicant has not provided substantial evidence or explanation to support this argument. The Examiner maintains that such a combination with Iwahara would have been obvious such that sound waves may be controlled in predetermined locations through a second set of crosstalk cancelling speakers.

### ***Conclusion***

**]THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON R. KURR whose telephone number is (571)272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason R Kurr/

Examiner, Art Unit 2614

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2614